WHAT IS CLAIMED IS:

1. A method for analyzing at least one electrical contact pair electrically coupled in series wherein the at least one contact pair includes at least one of a contact that is electrically coupled to a line-side of the at least one contact pair, and a contact that is electrically coupled to a load-side of the at least one contact pair, said method comprising:

electrically coupling the load-side contact and the line-side contact to electrical ground;

applying a test voltage across the contact pair while the line-side contact and load-side contact remain electrically coupled to electrical ground;

triggering a contact pair operation timer at a start of a test;

detecting at least one of a first closure of the contact pair and a first opening of the contact pair using the test voltage; and

determining the timing of the contact pair based upon the operation of the contact pair operation timer.

2. A method in accordance with Claim 1 wherein applying a test voltage across the contact pair comprises applying an alternating current test voltage across the contact pair.

3. A method in accordance with Claim 1 wherein applying a test voltage across the contact pair comprises applying an alternating current test voltage having a frequency of greater than approximately fifty Hertz across the contact pair.

4. A method in accordance with Claim 1 wherein applying a test voltage across the contact pair comprises applying an alternating current test voltage having a frequency of greater than approximately one kilo-Hertz across the contact pair.

5. A method in accordance with Claim 1 herein applying a test voltage across the contact pair comprises applying an alternating current test voltage having a frequency of greater than approximately one mega-Hertz across the contact pair.

6. A method in accordance with Claim 1 herein applying a test voltage across the contact pair comprises applying an alternating current test voltage having a frequency of between approximately one mega-Hertz and approximately two mega-Hertz across the contact pair.

7. A method in accordance with Claim 1 wherein the test voltage is applied to the contact pair through a testing circuit and wherein applying a test voltage across the contact pair further comprises determining the resonant frequency of the testing circuit.

8. A method in accordance with Claim 7 wherein determining the resonant frequency of the testing circuit comprises tuning the alternating current test voltage frequency such that an output signal of the testing circuit is substantially at a maximum output value.

9. A method in accordance with Claim 1 wherein applying a test voltage across the contact pair while the line-side contact and load-side contact remain electrically coupled to electrical ground comprises applying an alternating current test voltage across the contact pair having a frequency of approximately a resonant frequency of the testing circuit.

10. A method for analyzing a circuit breaker having at least one contact pair including a load-side contact and a line-side contact, said method comprising:

electrically coupling the load-side contact and the line-side contact to electrical ground;

applying an alternating current test voltage having a frequency of between approximately one mega-Hertz and approximately two mega-Hertz across

the circuit breaker contact pair while the load-side contact and the line-side contact remain electrically coupled to electrical ground;

starting a circuit breaker test including triggering a contact pair operation timer;

triggering the contact pair operation timer based on at least one of a first closure of the contact pair and a first opening of the contact pair; and

determining the timing of the contact pair based upon the operation of the contact pair operation timer.

11. A method in accordance with Claim 10 wherein the test voltage is applied to the contact pair through a testing circuit, wherein applying a test voltage across the contact pair comprises applying an alternating current test voltage across the contact pair at approximately a resonant frequency of the testing circuit.

12. A circuit breaker test device for analyzing contacts of a circuit breaker, said test device comprising:

a test voltage source configured to supply a test voltage to a load-side contact and a line-side contact of the circuit breaker;

a sensing circuit coupled to said test voltage source, said sensing circuit configured to monitor an output of said test voltage source;

a microprocessor coupled to an output of said sensing circuit, said microprocessor configured to receive the output of said sensing circuit;

a ground circuit electrically coupled to the load-side contact of the circuit breaker; and

a ground circuit electrically coupled to the line-side contact of the circuit breaker.

13. A circuit breaker test device in accordance with Claim 12 wherein said microprocessor is programmed to at least one of analyze data contained within the output of said sensing circuit, control parameters of said test voltage source, receive commands from an operator, execute scripts that include automatic testing procedures, and generate testing data output.

14. A circuit breaker test device in accordance with Claim 12 wherein said test voltage source is configured to supply a selectably variable test voltage at a predetermined frequency.

15. A circuit breaker test device in accordance with Claim 14 wherein said test voltage source is configured to supply a test voltage at a frequency greater than approximately one kiloHertz.

16. A circuit breaker test device in accordance with Claim 15 wherein said test voltage source is configured to supply a test voltage at a frequency greater than approximately one mega-Hertz.

17. A circuit breaker test device in accordance with Claim 16 wherein said test voltage source is configured to supply a test voltage at a frequency between approximately one mega-Hertz and approximately two mega-Hertz.

18. A circuit breaker test device in accordance with Claim 12 wherein said sensing circuit comprises:

a transformer comprising a first winding coupled to said test voltage source; and

a resistor coupled to said first winding, said resistor configured to drop test voltage source voltage for measuring current through said first winding.

19. A circuit breaker test device in accordance with Claim 18 wherein said transformer further comprises a second winding magnetically coupled to said first winding, said second winding coupled to at least one of said line-side contact and said load-side contact.

20. A circuit breaker test device in accordance with Claim 18 wherein said transformer further comprises a third winding magnetically coupled to said second winding, said third winding coupled to a sensing circuit output.

21. A circuit breaker test device in accordance with Claim 20 wherein said sensing circuit output comprises:

a differentiating circuit configured to filter power line interference from a sensing circuit output signal; and

a rectifier circuit configured to rectify the sensing circuit output signal.

22. A circuit breaker test device in accordance with Claim 20 wherein said differentiating circuit comprises a capacitor in series with the sensing circuit output.

23. A circuit breaker test device in accordance with Claim 20 wherein said rectifier circuit comprises a pair of oppositely-poled diodes.

24. A circuit breaker test device comprising:

a selectable frequency test voltage source configured to generate a circuit breaker test signal;

a sensing circuit coupled to said test voltage source output comprising a transformer, a differentiating circuit, and a rectifying circuit, said sensing circuit configured to:

transmit the circuit breaker test signal to at least one of a circuit breaker load-side contact and a circuit breaker line-side contact;

receive a circuit breaker contact test signal in response to the circuit breaker test signal; and

transmit the circuit breaker contact test signal to an output of said sensing circuit;

a grounding cable comprising a coaxial cable wherein a signal conductor first end is coupled to electrical ground through a first winding of said transformer, a signal conductor second end is coupled to said at least one of a circuit breaker load-side contact and a circuit breaker line-side contact, a shield conductor first end is coupled to said test voltage source through a second winding of said transformer, and a shield conductor second end is coupled to said circuit breaker; and

a microprocessor coupled to said output of said sensing circuit, said microprocessor configured to at least one of analyze data contained within the output of said sensing circuit, control parameters of said test voltage source, receive commands from an operator, execute scripts that include automatic testing procedures, and generate testing data output.